



Design and Construction Considerations for Steel Struts in Excavation of KVMRT Project in Malaysia

By Ir. Lee Peir Tien

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The Evening Talk on “Design and Construction Considerations for Steel Struts in Excavation of KVMRT Project in Malaysia” was organised by the Geotechnical Engineering Technical Division on 11 August 2015 at the Tan Sri Prof. Chin Fung Kee Auditorium, Wisma IEM. It was delivered by Ir Loh Yee Eng from TRIGEO Consultant Sdn Bhd. A total of 81 participants attended the evening talk.

Ir Loh introduced KVMRT – Sungai Buloh to Kajang Line to the audience.

The first MRT line in Malaysia consists of a total 31 stations and a total length of 51km. The underground section starts from Semantan North Portal and ends at Maluri South Portal with a total length of 9.1km. In view of deep excavation required for the construction of a station box, Steel strutted Temporary Earth Retaining System (TERS) the most common shoring support method in KVMRT is used. Therefore, good understanding of fundamental structural steel design in association with imposed loadings from geotechnical analyses is key to successful implementation in deep excavation projects.

Ir Loh explained several terminologies on strutting designs and shared her experience on the TERS systems adopted in other projects before moving on to the detailed explanations on the design considerations of TERS.

The speaker highlighted that “the design of steel strutting elements for KVMRT project is in accordance with the limit state design concept in BS5950 and recommendations in CIRIA Special Publication 95 (SP95)”. She also explained in detail the load cases and load factors for the limit state design. “Safe and economical design can be achieved when geotechnical engineers are able to bridge the gap in complicated soil-structure interactions between geotechnical analyses and structural designs with practical design considerations”, Ir Loh added.

